



Initial Product/Process Change Notification

Document #: IPCN25390X

Issue Date: 17 May 2023

Title of Change:	Qualification of 3V Minigates Vanguard die in SC88/A, SOT5 and SOT9 Packages
Proposed First Ship date:	30 Apr 2024 or earlier if approved by customer
Contact Information:	Contact your local onsemi Sales Office or logic.fpcn@onsemi.com
PCN Samples Contact:	Contact your local onsemi Sales Office. Sample requests are to be submitted no later than 30 days from the date of first notification, Initial PCN or Final PCN, for this change. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.
Type of Notification:	This is an Initial Product/Process Change Notification (IPCN) sent to customers. An IPCN is an advance notification about an upcoming change and contains general information regarding the change details and devices affected. It also contains the preliminary reliability qualification plan. The completed qualification and characterization data will be included in the Final Product/Process Change Notification (FPCN). This IPCN notification will be followed by a Final Product/Process Change Notification (FPCN) at least 90 days prior to implementation of the change. In case of questions, contact < PCN.Support@onsemi.com >
Marking of Parts/ Traceability of Change:	Custom source on label will show TW instead of US to indicate new die source from Vanguard. Changed material may be identified by plant code or lot code too.
Change Category:	Test Change, Assembly Change, Wafer Fab Change
Change Sub-Category(s):	Material Change, Manufacturing Process Change, Manufacturing Site Transfer

Sites Affected:

onsemi Sites	External Foundry/Subcon Sites
onsemi Leshan, China	Vanguard International Semiconductor, Taiwan

Description and Purpose:

This IPCN was issued to qualify new die source in Taiwan for 3V Minigates and standardize the assembly and test site to increase the front end and back-end capacity and standardizing materials.

NC7xxxP5X Series:

	Before Change Description		After Change Description
LeadFrame	LF SC70 5L Cu A194 STAMPED PPF	LF SC 88A 5L C194 STAMPED	LF SC88A 5L A42 STAMPED
Die Attach	DA EPOXY ABLESTICK 2200D	DA EPXY HE ABLESTIK 84-1LMISR4 5CC	Au Eutectic
Bond Wire	Au	Au	Cu
Mold Compound	MC SUMITOMO G600 HF	MC GREEN PA CK5000A 13MMX3.9G	Hysol GR640 HV
Assembly Site#	Subcon China	onsemi, Philippines	onsemi Leshan, China
Die Source	South Portland Maine	South Portland Maine	Vanguard
Plating	Preplated	100% Sn	100% Sn

NC7SPU04P5X and NC7SV08P5X only run at subcon China.

No change in marking.



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NC7xxxP6X Series:

Material to be changed	Before Change (Existing flow)		After Change (New flow)
Assy Site##	Subcon China	onsemi, Philippines	onsemi Leshan, China
Wire	Au	Au	Cu
Lead frame	LF SC88 6L 70X86 PPF	LF SC 88 6L C194 STAMPED	LF SC88 6L A42 STAMPED
Mold Compound	MC SUMITOMO G600 HF	MC GREEN PA CK5000A 13MMX3.9G	Hysol GR640 HV
Die Attach	DA EPOXY ABLESTICK 2200D	DA EPXY HE ABLESTIK 84-1LMISR4 5CC	Eutectic
Plating	Preplated	100% Sn	100% Sn
Die Source	South Portland Maine	South Portland Maine	Vanguard

Only **NC7WV07P6X** runs at both subcon China and onsemi Philippines, the other run at subcon China only.

No change in marking.

NL17SGxxDFT2G Series:

	Before Change Description	After Change Description
Bond Wire	Au	Cu
Die Source	External Foundry Israel	Vanguard

No change in marking.

SL17xxXV5T2G/NL17xxXV5T2G Series:

	Before Change Description	After Change Description
Bond Wire	Au	Cu
Mold Compound	Showa Denko GE200F	Hysol GR640 HV
Die Source	External Foundry Israel	Vanguard

No change in marking.

NL17xxxP5T5G Series:

	Before Change Description	After Change Description
Bond Wire	Au	Cu
Mold Compound	Showa Denko GE200F or Hysol GR640 HV	Hysol GR640 HV
Die Source	External Foundry Israel	Vanguard

No change in marking.



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Qualification Plan:

QV DEVICE NAME: NC7SP14P5X

RMS: 88008 / 88413

PACKAGE: SC88A

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
Earlier Life Failure Rate	JESD22-A108	Ta=125°C, max rated Vcc	48 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

QV DEVICE NAME: NC7SV157P6X

RMS: 91004

PACKAGE: SC88

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

QV DEVICE NAME: NL17SG14P5T5G

RMS: 88110

PACKAGE: SOT-953

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours



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QV DEVICE NAME: NL17SV16XV5T2G

RMS: 88114

PACKAGE: SOT-553

Test	Specification	Condition	Interval
High Temperature Operating Life	JESD22-A108	Ta=125°C, max rated Vcc	1008 hours
High Temperature Storage Life	JESD22-A103	Ta= 150°C	1008 hours
Preconditioning	J-STD-020 JESD-A113	MSL 1 @ 260°C	-
Temperature Cycling	JESD22-A104	Ta= -65°C to +150°C	500 cycles
Highly Accelerated Stress Test	JESD22-A110	130°C, 85% RH, 18.8psig, bias	96 hours
Unbiased Highly Accelerated Stress Test	JESD22-A118	130°C, 85% RH, 18.8psig, unbiased	96 hours

Estimated date for qualification completion: **31 December 2023**

List of Affected Parts:

Note: Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the **PCN Customized Portal**.

Part Number	Qualification Vehicle
NC7SP125P5X	NC7SP14P5X, NC7SV157P6X
NC7SV04P5X	NC7SP14P5X, NC7SV157P6X
SL17SG125XV5T2G	NL17SV16XV5T2G
NC7WV17P6X	NC7SP14P5X, NC7SV157P6X
NC7SV17P5X	NC7SP14P5X, NC7SV157P6X
NC7SP14P5X	NC7SP14P5X, NC7SV157P6X
NL17SG32DFT2G	NC7SP14P5X, NC7SV157P6X
NC7SV08P5X	NC7SP14P5X, NC7SV157P6X
NC7SV157P6X	NC7SP14P5X, NC7SV157P6X
NL17SV08XV5T2G	NL17SV16XV5T2G
NC7WV07P6X	NC7SP14P5X, NC7SV157P6X
NC7WV16P6X	NC7SP14P5X, NC7SV157P6X
NC7WV04P6X	NC7SP14P5X, NC7SV157P6X
NC7SP17P5X	NC7SP14P5X, NC7SV157P6X
NC7SPU04P5X	NC7SP14P5X, NC7SV157P6X
NL17SG32P5T5G	NL17SG14P5T5G
NL17SV16XV5T2G	NL17SV16XV5T2G
NL17SG07EDFT2G	NC7SP14P5X, NC7SV157P6X



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NL17SV32XV5T2G	NL17SV16XV5T2G
NL17SG14P5T5G	NL17SG14P5T5G
NC7SV34P5X	NC7SP14P5X, NC7SV157P6X
NC7SV00P5X	NC7SP14P5X, NC7SV157P6X
NL17SG07DFT2G	NC7SP14P5X, NC7SV157P6X
NC7SV125P5X	NC7SP14P5X, NC7SV157P6X
NC7SV14P5X	NC7SP14P5X, NC7SV157P6X
NL17SG08DFT2G	NC7SP14P5X, NC7SV157P6X
NC7SV32P5X	NC7SP14P5X, NC7SV157P6X
NL17SG17P5T5G	NL17SG14P5T5G
NL17SG04P5T5G	NL17SG14P5T5G